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Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer
Thirty-seventh meeting
Geneva, 4–8 April 2016
Items 3 and 4 of the provisional agenda*

Issues for discussion by and information for the attention of the Open-ended Working Group of the Parties to the Montreal Protocol at its thirty-seventh meeting

Note by the Secretariat

I. Introduction

1. In paragraph 4 of decision XXVII/1, entitled "Dubai pathway on hydrofluorocarbons" (see annex I), the Twenty-Seventh Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer decided to hold in 2016 a series of Open-ended Working Group meetings and other meetings, including an extraordinary meeting of the parties. The current, thirty-seventh, meeting of the Open-ended Working Group is the first of the meetings of the Open-ended Working Group called for in decision XXVII/1. The second such meeting, the Working Group's thirty-eighth meeting, will be convened back-to-back with the Third Extraordinary Meeting of the Parties from 18 to 23 July 2016 in Vienna. The thirty-seventh meeting of the Open-ended Working Group and the Third Extraordinary Meeting of the parties will be focused solely on the discussions under decision XXVII/1. By contrast, the Working Group's thirty-eighth meeting will deal both with issues related to hydrofluorocarbons (HFCs) and non-HFC-related issues. The Third Extraordinary Meeting will enable the Meeting of the Parties to adopt any HFC-related decisions that it may wish to adopt at that time. The Twenty-Eighth Meeting of the Parties, to be hosted in Kigali from 10 to 14 October 2016, will enable the adoption of decisions to be taken on all issues, including with regard to HFCs, as appropriate.

2. Paragraph 1 of decision XXVII/1 mandates the parties "to work within the Montreal Protocol to an HFC amendment in 2016 by first resolving challenges by generating solutions in the contact group on the feasibility and ways of managing HFCs during Montreal Protocol meetings". Under agenda items 4 (a) and 4 (b) of the provisional agenda for the thirty-seventh meeting of the Open-ended Working Group (UNEP/OzL.Pro.WG.1/37/1), the Working Group may discuss the feasibility of managing HFCs by addressing the challenges and generating solutions expected under decision XXVII/1 as well as ways of managing HFCs, including the proposals to amend the Protocol

* UNEP/OzL.Pro.WG.1/37/1.

that were discussed by the Twenty-Seventh Meeting of the Parties,[1] which the parties are to continue to consider at their 2016 meetings in accordance with paragraph 5 of decision XXVII/1. Taking into account the progress in the discussions, the parties may wish to address under agenda item 4 (c) the process and the associated schedule for moving forward to an amendment in 2016.

3. Section II of the present note sets out a brief summary of the issues on the provisional agenda for the thirty-seventh meeting of the Open-ended Working Group. To facilitate the discussion on some identified challenges under decision XXVII/1, the Secretariat has prepared a number of briefing notes that address key issues of relevance to those challenges. The briefing notes aim also at reminding parties of the status of their discussions at recent meetings. The briefing notes will soon be available on the Ozone Secretariat website.

4. Section III of the present note provides information that the Secretariat would like to bring to the attention of the parties.

II. Summary of issues for discussion by the Open-ended Working Group at its thirty-seventh meeting

Agenda item 3

Report by the Technology and Economic Assessment Panel on information on alternatives to ozone-depleting substances (decision XXVII/4)

5. The Twenty-Seventh Meeting of the Parties in decision XXVII/4 requested the Technology and Economic Assessment Panel "to prepare a report for consideration by the Open-ended Working Group at its thirty-seventh meeting,[2] and thereafter an updated report to be submitted to the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer in 2016, that would:

(a) Update, where necessary, and provide new information on alternatives to ozone-depleting substances, including not-in-kind alternatives, based on the guidance and assessment criteria provided in subparagraph 1 (a) of decision XXVI/9 and taking into account the most recent findings on the suitability of alternatives at high-ambient temperatures, highlighting in particular:

(i) The availability and market penetration of these alternatives in different regions;

(ii) The availability of alternatives for replacement and retrofit of refrigeration systems in fishing vessels, including in small island countries;

(iii) New substances in development that could be used as alternatives to ozone-depleting substances and that could become available in the near-future;

(iv) The energy efficiency associated with the use of these alternatives;

(v) The total warming impact and total costs associated with these alternatives and the systems where they are used;

(b) Update and extend to 2050 all the scenarios in the decision XXVI/9 report."

6. During December 2015 and in early 2016 the Panel established a task force to prepare the report called for in decision XXVII/4. In accordance with the terms of reference of the Technology and Economic Assessment Panel, the nomination of members to the task force was carried out in full consultation with parties of which the nominated members are nationals.

[1] UNEP/OzL.Pro.27/5, UNEP/OzL.Pro.27/6, UNEP/OzL.Pro.27/7 and UNEP/OzL.Pro.27/8.

[2] The Technology and Economic Assessment Panel and its technical options committees and task forces normally issue their reports in May each year to enable parties to consider them at the mid-year meeting of the Open-ended Working Group. Taking into account the additional meetings to be held in 2016, however, the Panel and its decision XXVII/4 task force will work to ensure that an initial report is issued in time for the thirty-seventh meeting of the Open-ended Working Group.

7. The Panel and its task force have organized their work as set out below to ensure that relevant information is presented for consideration by the parties at the two Open-ended Working Group meetings in 2016 and that the updated final report is ready for consideration by the Twenty-Eighth Meeting of the Parties in accordance with decision XXVII/4.

8. The initial report to be prepared for the thirty-seventh meeting of the Open-ended Working Group will aim:

(a) To provide an overview of the technical considerations and availability of information for assessing the potential global warming impact of the use of alternatives, taking into account their energy efficiency (paragraph 1 (a) (iv) of decision XXVII/4), and the total warming impact and total cost of those alternatives and the systems in which they are used (paragraph 1 (a) (v));

(b) To assess the results of the testing of refrigerants under high-ambient-temperature conditions to the extent that relevant information is available to the Panel (paragraph 1 (a));

(c) To update and extend scenarios for the refrigeration and air-conditioning sector (paragraph 1 (b)).

9. The second report to be prepared, for the thirty-eighth meeting of the Open-ended Working Group, will address all other elements of decision XXVII/4, including by updating and extending scenarios for sectors other than refrigeration and air-conditioning.

10. It is expected that the Open-ended Working Group may provide further guidance for the preparation of the final updated report for the Twenty-Eighth Meeting of the Parties. The final updated report will address any such further guidance as well as any requests from the Open-ended Working Group.

11. A summary of the initial report, when it becomes available, will be included in an addendum to the present note, which will be issued in the six official languages of the United Nations in time for consideration by the Open-ended Working Group at its thirty-seventh meeting.

Agenda item 4 (a)
Dubai pathway on hydrofluorocarbons (HFCs)

Resolving challenges by generating solutions on the feasibility of managing HFCs

12. In paragraph 1 of decision XXVII/1 the parties decided to work to an HFC amendment in 2016 by first resolving challenges by generating solutions in the contact group on the feasibility and ways of managing HFCs. That contact group was established at the Twenty-Seventh Meeting of the Parties as a result of an agreement reached at the resumed thirty-sixth meeting of the Open-ended Working Group.

13. At the Twenty-Seventh Meeting of the Parties the contact group discussed the eight challenges that were listed in its mandate, which was set out in annex I to decision XXVII/1. Paragraph 2 of decision XXVII/1 recognized the progress made on those challenges at the Twenty-Seventh Meeting of the Parties, including the development of a common understanding on issues related to flexibility of implementation, second and third stage conversions, guidance to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, enabling activities for capacity-building and the need for an exemption for high-ambient-temperature countries.

14. That same paragraph of decision XXVII/1 also endorsed the concepts listed in annex II to the decision, and those concepts have been mapped against the eight challenges in a table set out in annex II to the present note. Paragraph 3 of decision XXVII/1 recognized that further progress was needed, in particular with regard to other challenges identified in the contact group mandate, including conversion costs, technology transfer and intellectual property rights.

15. Decision XXVII/1 further includes a list of nineteen challenges that were identified at the thirty-fifth meeting of the Open-ended Working Group, which took place in Bangkok in April 2015 (UNEP/OzL.Pro.WG.1/35/3, annex II). Those 19 challenges have also been included in the table in annex II to the present note, where they are mapped against the relevant eight challenges listed in the mandate of the contact group.

16. As noted above, the Secretariat has prepared briefing notes that provide a reference tool for the parties and background information to support their discussions at the thirty-seventh meeting of the Open-ended Working Group.

Agenda item 4 (b)
Ways of managing HFCs, including the amendment proposals submitted by parties

17. The parties decided in paragraph 5 of decision XXVII/1 to continue consideration at their meetings in 2016 of items 6 and 7 of the agenda for the Twenty-Seventh Meeting of the Parties, namely, HFC management issues, including the proposals to amend the Montreal Protocol that were considered by the Twenty-Seventh Meeting of the Parties, which are now set out in documents UNEP/OzL.Pro.WG.1/37/3 (submitted by Canada, Mexico and the United States of America, referred to as the North American proposal), UNEP/OzL.Pro.WG.1/37/4 (submitted by India, referred to as the Indian proposal), UNEP/OzL.Pro.WG.1/37/5 (submitted by the European Union on behalf of its 28 member States, referred to as the European Union proposal) and UNEP/OzL.Pro.WG.1/37/6 (submitted by Kiribati, the Marshall Islands, Mauritius, the Federated States of Micronesia, Palau, the Philippines, Samoa and Solomon Islands, referred to as the Island States proposal).

18. The Secretariat had previously prepared a schematic summary that presents the key elements of the four amendment proposals, which is reproduced in annex III to the present note and is also available from the "HFC management document" page of the Ozone Secretariat website (http://ozone.unep.org/en/hfc-management-documents-2014-onwards).

Agenda item 4 (c)
Work within the Montreal Protocol to an HFC amendment in 2016 under decision XXVII/1: process for moving forward

19. Taking stock of the discussion and any common understanding reached under agenda items 4 (a) and 4 (b), the Open-ended Working Group may wish to consider the process for moving forward in the course of 2016 on the remaining issues in working to an amendment to the Protocol, including by clarifying what those remaining issues are and agreeing on a schedule for addressing them. Those remaining issues could include:

(a) Specific issues in respect of the challenges that still need to be resolved;

(b) Developing the solutions to the challenges in the form of relevant articles of the Montreal Protocol where possible or decisions by the parties where appropriate; and

(c) Consideration of the proposals to amend the Protocol, in particular with regard to:

(i) The financial mechanism and the transfer of technology (Article 10, financial mechanism; and Article 10A, transfer of technology);[3]

(ii) List of substances (Article 1, definitions, and an annex to the Protocol);[4]

(iii) Baselines (a new Article for HFC controls and Article 3, calculation of control levels);[5]

(iv) Phase-down schedules (Article 2, control measures; Article 5, special situation of

[3] Article 10 provides for financial and technical cooperation, including the transfer of technologies, to enable Article 5 parties to comply with control measures by covering agreed incremental costs incurred by those parties. The mechanism includes a Multilateral Fund and an Executive Committee to develop and monitor and manage the Fund. Article 10A requires the parties to take every practical step to transfer the best available technologies to Article 5 parties under fair and most favourable conditions.

[4] Article 1 defines controlled substances as those listed in the annexes to the Protocol whether existing alone or a in a mixture, and including isomers. Any controlled substance or mixture in a manufactured product other than a container for the transportation or storage of that substance is excluded.

[5] The baseline for each controlled substance is determined by the parties as part of control measures for that substance under Article 2 while Article 3 provides a formula for the calculation of production and consumption of controlled substances.

developing countries; and a new article for HFC controls);[6]

(v) Exemptions (Article 2, control measures; Article 5, special situation of developing countries; and a new article for HFC controls);[7]

(vi) Trade provisions (Article 4, control of trade with non-parties);[8]

(vii) Data reporting (Article 7, reporting of data);[9] and

(viii) Other articles and the preamble.

III. Issues that the Secretariat would like to bring to the attention of the parties

A. Surveys funded by the Multilateral Fund and guidelines for the surveys

20. At its seventy-fifth meeting, in November 2015, the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol approved projects for 42 parties in addition to the 85 surveys of ozone-depleting substance alternatives that had been approved at the Committee's seventy-fourth meeting, in May 2015. The Committee also took note of the format of those surveys, developed by the Secretariat of the Multilateral Fund in consultation with bilateral and implementing agencies, on the understanding that some information on the preparation and the use of ozone-depleting substance alternatives were provided for guidance purposes only. The surveys would be conducted on a voluntary basis, information would be collected where available and the results would be presented solely for information purposes. The national surveys on ozone-depleting substance alternatives would be undertaken by Article 5 parties that had received funding from the Multilateral Fund to cover the years 2012–2015, with the assistance of relevant bilateral or implementing agencies and using the methodologies and approaches agreed between those parties and the agencies (Executive Committee decision 75/67). The results of the surveys are to be analysed by the Multilateral Fund secretariat and presented to the Executive Committee at its first meeting in 2017.

B. Update on World Customs Organization activities on custom codes for HFCs

21. In its decision XXVI/8 the Meeting of the Parties had, inter alia, requested the Ozone Secretariat to liaise with the World Customs Organization (WCO) to examine the possibility of designating individual customs codes under the Harmonized Commodity Description and Coding System for the most commonly traded fluorinated substitutes for hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs). The secretariat participated in a session of the Harmonized System Review Subcommittee in November 2015 at the invitation of WCO to provide information on possible new Harmonized System codes for HFCs. The WCO secretariat had prepared information on a possible amendment to the Harmonized System nomenclature in respect of commonly used HFCs and mixtures for consideration by the Harmonized System Review Subcommittee. Two options for the subheadings listing HFCs under chapter 29 of the Harmonized System were presented. The first option was to insert new subheadings for HFCs in chapter 29 and the second option was to delete and substitute the existing subheadings under the same chapter. Both options were discussed by the Review Subcommittee. The item was further discussed by the Harmonized System Scientific Subcommittee at its meeting in January 2016, which agreed that both proposals were technically correct. The Scientific Subcommittee agreed to continue discussion on the basis of two alternative

[6] The phase-down schedule for each controlled substance is adopted by the parties under Article 2 (for non-Article 5 parties) and Article 5 (for Article 5 parties).

[7] Exemptions from the control measures for controlled substances are provided under Article 2 and Article 5 of the Protocol.

[8] Article 4 provides for the control of trade with non-parties while the requirement to establish and implement a system for licensing the import and export of ozone-depleting substances is provided under Article 4B.

[9] Article 7 requires parties to provide the Secretariat with statistical data on their production and consumption of ozone-depleting substances.

proposals. The issue will be revisited by both the Review Subcommittee and the Scientific Subcommittee at their next sessions in 2016.

C. Staff changes in the Ozone Secretariat

22. Ms. Sophia Mylona has been selected to fill the post of Senior Environmental Affairs Officer (formerly Senior Scientific Affairs Officer). The post of the Compliance and Monitoring Officer, which she vacated, will be advertised in February 2016.

Annex I

Decision XXVII/1: Dubai pathway on hydrofluorocarbons

Recognizing the Montreal Protocol's history of success in achieving collaborative and consensus-based outcomes and that hydrofluorocarbons (HFCs) are replacements for ozone-depleting substances that parties to the Montreal Protocol are already successfully phasing out,

1. To work within the Montreal Protocol to an HFC amendment in 2016 by first resolving challenges by generating solutions in the contact group on the feasibility and ways of managing HFCs during Montreal Protocol meetings;

2. To recognize the progress made at the Twenty-Seventh Meeting of the Parties on the challenges identified in the mandate of the contact group agreed at the resumed thirty-sixth meeting of the Open-ended Working Group (listed in annex I to the present decision,) on the feasibility and ways of managing HFCs, including development of a common understanding on issues related to flexibility of implementation, second and third stage conversions, guidance to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, enabling activities for capacity-building and the need for an exemption for high-ambient-temperature countries, and to endorse the concepts listed in annex II to the present decision;

3. To recognize that further progress still needs to be made, in particular with respect to other challenges identified in the contact group mandate, for example conversion costs, technology transfer and intellectual property rights;

4. To hold in 2016 a series of Open-ended Working Group meetings and other meetings, including an extraordinary meeting of the parties;

5. To continue consideration at the meetings mentioned in paragraph 4 above of items 6 and 7 of the agenda for the Twenty-Seventh Meeting of the Parties (UNEP/OzLPro. 27/1), including the submissions set out in documents UNEP/OzL.Pro.27/5, UNEP/OzL.Pro.27/6, UNEP/OzL.Pro.27/7 and UNEP/OzL.Pro.27/8);

Annex I to decision XXVII/1

Mandate for a possible contact group on the feasibility and ways of managing HFCs

The Open-ended Working Group of the Parties to the Montreal Protocol at its thirty-fifth meeting held in Bangkok from 22 to 24 April 2015, agreed that "it would continue to work inter-sessionally in an informal manner to study the feasibility and ways of managing HFCs, including, inter alia, the related challenges set out in annex II to the [report of the thirty-fifth meeting of the Open-ended Working Group], with a view to the establishment of a contact group on the feasibility and ways of managing HFCs at the thirty-sixth meeting of the Open-ended Working Group" (UNEP/OzL.Pro.WG.1/35/6, para. 128).

The informal meeting was convened on the 12-13 of June in Vienna on the above mentioned basis.

The parties have recognised in their interventions the success of the Montreal Protocol and its institutions in phasing out ODSs.

The management of HFCs is applicable to both A5 and non-A5 parties.

Parties agree that nothing should be considered agreed until everything is agreed.

Parties agree that they shall first resolve the challenges mentioned below by generating solutions in a contact group.

- Relevance and recognition of the special situation of developing countries and the principles under the Montreal Protocol which have enabled sufficient additional time in the implementation of commitments by A5 countries,
- Maintain the MLF as the financial mechanism, and to agree that additional financial resources will be provided by non-A5 parties to offset costs arising out of HFC management for A5 parties if obligations are agreed to. In this regard, key elements for financial support from the MLF for A5 parties will be developed by the contact group to provide guidance to the ExCom of the MLF, taking into account the concerns of parties,

- The elements in paragraph 1(a) of decision XXVI/9 including IPR issues in considering the feasibility and the ways of managing HFCs,
- Flexibility in implementation that enables countries to set their own strategies and set their own priorities in sectors and technologies,
- Exemption process and a mechanism for periodic review of alternatives including the consideration of availability or lack of availability of alternatives in all sectors in A5 countries and special needs for high ambient countries, based on all the elements listed in paragraph 1(a) of decision XXVI/9,
- Relationship with the HCFC phase out,
- Non-party trade provisions, and
- Legal aspects, synergies and other issues related to the UNFCCC in the context of HFC management under the MP.

Then, the parties will discuss in the contact group the ways of managing HFCs including the amendment proposals submitted by the parties.

Annex II of the report of the 35th Open-ended Working Group meeting

Challenges to be addressed

- Energy efficiency
- Funding requirements
- Safety of substitutes
- Availability of technologies
- Performance and challenges in high ambient temperatures
- Second and third conversions
- Capacity-building
- Non-party trade provisions
- Synergies with the United Nations Framework Convention on Climate Change (legal, financial aspects)
- Relationship with the HCFC phase-out
- Ecological effects (effects on fauna and flora)
- Implications for human health
- Social implications
- National policy implications
- Challenges to the production sector
- Rates of penetration of new alternatives
- Exemptions and ways to address lack of alternatives
- Technology transfer
- Flexibility in implementation

Annex II to decision XXVII/1

Issues raised and discussed in detail as part of the challenges during the contact group will be further discussed, in a direction consistent with the record of the discussion.

Funding

Maintain the MLF as the financial mechanism and agree that additional financial resources will be provided by non A5 parties to offset costs arising out of HFC management for A5 parties if obligations are agreed to.

Flexibility

A5 parties will have flexibility to prioritize HFCs, define sectors, select technologies/alternatives, elaborate and implement their strategies to meet agreed HFC obligations, based on their specific needs and national circumstances, following a country driven approach.

The ExCom shall incorporate the principle in the above mentioned paragraph in relevant guidelines and its decision making process.

2nd and 3rd conversions

Enterprises that have already converted to HFCs in phasing out CFCs and/or HCFCs will be eligible to receive funding from the MLF to meet agreed incremental costs in the same manner as enterprises eligible for 1st conversions.

Guidance to the ExCom

It is understood that guidelines and/or methodologies will have to be developed on the following issues related to HFC control measures, if agreed:

- Determination of incremental costs
- Calculation of incremental costs
- Cost effectiveness thresholds
- Energy efficiency and climate impacts of projects

Enabling activities

Enabling activities will be supported by the MLF in any HFC phase down agreement.

- Capacity building and training for handling HFC alternatives in the servicing sector, the manufacturing and production sectors
- Institutional Strengthening
- Article 4b Licensing
- Reporting
- Demonstration projects
- Developing national strategies

HAT Exemption

The need for an exemption for high ambient temperature countries.

It is understood that the remaining challenges will be further discussed.

Annex II

Table of challenges and endorsed concepts listed in decision XXVII/1, "Dubai Pathway on hydrofluorocarbons"

No.	**Challenges in mandate** Annex I to decision XXVII/1	**Challenges listed in OEWG35 report**[a] Also appended to decision XXVII/1	**Endorsed concepts** Annex II to decision XXVII/1
1	Relevance and recognition of the special situation of developing countries and the principles under the Montreal Protocol that have enabled sufficient additional time in the implementation of commitments by Article 5 parties	• **National implications** • Social implications	
2	Maintain the Multilateral Fund for the Implementation of the Montreal Protocol as the financial mechanism and agree that additional financial resources will be provided by non-Article 5 parties to offset costs arising out of HFC management for Article 5 parties if obligations are agreed to. In this regard, key elements for financial support from the Multilateral Fund for the Implementation of the Montreal Protocol for Article 5 parties will be developed by the contact group to provide guidance to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, taking into account the concerns of parties.	• Funding requirements • Second and third conversions • Capacity-building • Challenges in the production sector • Technology transfer	**Funding** Maintain the Multilateral Fund as the financial mechanism and agree that additional financial resources will be provided by non-Article 5 parties to offset costs arising out of HFC management for Article 5 parties if obligations are agreed to. **2nd and 3rd conversions** Enterprises that have already converted to HFCs in phasing out CFCs and/or HCFCs will be eligible to receive funding from the Multilateral Fund for the Implementation of the Montreal Protocol to meet agreed incremental costs in the same manner as enterprises eligible for 1st conversions. **Guidance to the Executive Committee** It is understood that guidelines and/or methodologies will have to be developed on the following issues related to HFC control measures, if agreed: - Determination of incremental costs - Calculation of incremental costs - Cost effectiveness thresholds - Energy efficiency and climate impacts of projects **Enabling activities** Enabling activities will be supported by the Multilateral Fund for the Implementation of the Montreal Protocol in any HFC phase-down agreement. - Capacity-building and training for handling HFC alternatives in the

[a] The list of challenges also included "ecological effects (effects on fauna and flora)" and "implications on human health." A brief description of the issues, focusing on trifluoroacetic acid (TFAs), was issued by the Secretariat as an informal brief in June 2015.

No.	**Challenges in mandate** Annex I to decision XXVII/1	**Challenges listed in OEWG35 report**[a] Also appended to decision XXVII/1	**Endorsed concepts** Annex II to decision XXVII/1
			servicing sector, the manufacturing and production sectors - Institutional strengthening (*linked to national policy implications*) - Article 4B Licensing - Reporting - Demonstration projects - Developing national strategies. (*linked to national policy implications*)
3	The elements in paragraph 1 (a) of decision XXVI/9[b] including intellectual property rights issues in considering the feasibility and ways of managing HFCs	• Energy efficiency • Safety of substitutes • Availability of technologies • Performance and challenges in high ambient temperatures • Rates of penetration of new alternatives • Technology transfer	
4	Flexibility in implementation that enables countries to set their own strategies and priorities in sectors and technologies	• Flexibility in implementation	**Flexibility** Article 5 parties will have flexibility to prioritize HFCs, define sectors, select technologies/alternatives and elaborate and implement their strategies to meet agreed HFC obligations, based on their specific needs and national circumstances, following a country-driven approach (*linked to national policy implications*). The Executive Committee shall incorporate the principle in the above-mentioned paragraph into relevant guidelines and its decision-making process.
5	Exemption process and a mechanism for periodic review of alternatives, including the consideration of the availability or lack of availability of alternatives in all sectors in Article 5 parties and the special needs of high-ambient-temperature countries, based on all the elements listed in paragraph 1 (a) of decision XXVI/9	• Exemptions and ways to address lack of alternatives • Performance and challenges in high ambient temperatures (policy aspects)	**High ambient temperature exemption** The need for an exemption for high-ambient-temperature countries.

[b] The elements in paragraph 1 (a) of decision XXVI/9: Update information on alternatives to ozone-depleting substances in various sectors and subsectors and differentiating between parties operating under paragraph 1 of Article 5 and parties not so operating, considering energy efficiency, regional differences and high ambient temperature conditions in particular, and assessing whether they are:

(i) commercially available; (ii) technically proven; (iii) environmentally sound; (iv) economically viable and cost effective; (v) safe to use in areas with high urban densities considering flammability and toxicity issues, including, where possible, risk characterization; and (vi) easy to service and maintain; and describe the potential limitations of their use and their implications for the different sectors, in terms of, but not limited to, servicing and maintenance requirements, and international design and safety standards.

No.	**Challenges in mandate** Annex I to decision XXVII/1	**Challenges listed in OEWG35 report**[a] Also appended to decision XXVII/1	**Endorsed concepts** Annex II to decision XXVII/1
6	Relationship with the HCFC phase-out	• Relationship with the HCFC phase-out	
7	Non-party trade provisions	• Non-party trade provisions	
8	Legal aspects, synergies and other issues related to the United Nations Framework Convention on Climate Change in the context of HFC management under the Montreal Protocol	• Synergies with the United Nations Framework Convention on Climate Change (legal and financial aspects)	

Annex III

Summary of the HFC amendment proposals submitted by Canada, Mexico and the United States (North American proposal), India (Indian proposal), the European Union and its member States (European Union proposal) and island States[1] (Island States proposal)[2]

	North American proposal		Indian proposal		European Union proposal		Island States proposal	
	Non-Article 5 parties	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*
Baseline consumption	Average HFC consumption plus 75% of average HCFC consumption in 2011–2013 (CO_2-eq)	Average HFC consumption plus 50% of average HCFC consumption in 2011–2013 (CO_2-eq)	Average HFC consumption in 2013–2015 plus 25% of HCFC baseline* consumption (CO_2-eq)	Average HFC consumption in 2028–2030 plus 32.5% of HCFC baseline** consumption (CO_2-eq)	Average HFC consumption in 2009–2012 plus 45% of average HCFC consumption allowed under the Protocol in 2009-2012 (CO_2-eq)	Average HFC and HCFC consumption in 2015–2016 (CO_2-eq)	Average HFC consumption in 2011–2013 plus 10% of HCFC baseline* consumption (CO_2-eq)	Average HFC consumption in 2015–2017 plus 65% of HCFC baseline** consumption (CO_2-eq)
Baseline production	Average HFC production plus 75% of average HCFC production in 2011–2013 (CO_2-eq)	Average HFC production plus 50% of average HCFC production in 2011–2013 (CO_2-eq)	Average HFC production in 2013–2015 plus 25% of HCFC baseline* production (CO_2-eq)	Average HFC production in 2028–2030 plus 32.5% of HCFC baseline** production (CO_2-eq)	Average HFC production in 2009–2012 plus 45% of average HCFC production allowed under the Protocol in 2009-2012 (CO_2-eq)	Average HFC production in 2009–2012 plus 70% of average HCFC production in 2009–2012 (CO_2-eq)	Average HFC production in 2011–2013 plus 10% of HCFC baseline* production (CO_2-eq)	Average HFC production in 2015–2017 plus 65% of HCFC baseline** production (CO_2-eq)
			**1989 HCFC levels + 2.8% of 1989 CFC levels*	*** Average 2009–2010 levels*			**1989 HCFC levels + 2.8% of 1989 CFC levels*	*** Average 2009–2010 levels*

[1] Kiribati, Marshall Islands, Mauritius, Micronesia (Federated States of), Palau, Philippines, Samoa and Solomon Islands.

[2] The present schematic summary is issued without formal editing.

	North American proposal			Indian proposal		European Union proposal		Island States proposal	
		Non-Article 5 parties	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*	*Non-Article 5 parties*	*Article 5 parties*
Potential reduction steps *(% of the baseline production/ consumption)* **Montreal Protocol Articles 2 & 5**	*Year*	*Reduction steps apply to HFCs only*		*Reduction steps apply to HFCs only*		*Reduction steps apply to HFCs only*	*Consumption reduction steps apply to the basket of HFCs and HCFCs Production reduction steps apply to HFCs only*	*Reduction steps apply to HFCs only*	
	2016			100%					
	2017							85%	
	2018			90%					
	2019	90%				85%	Freeze of combined HCFC and HFC consumption		
							Freeze of HFC production		
	2020						Further reduction steps and their timing to be agreed by 2020		85%**
	2021		100%					65%	
	2023			65%		60%			
	2024	65%							
	2025							45%	65%**
	2026		80%						
	2028					30%			
	2029			30%				25%	
	2030	30%							45%**
	2031				100%				
	2032		40%		Reduction steps to be determined 5 years in advance of the next 5-year period				
	2033							10%	
	2034					15%			
	2035			15%					25%
	2036	15%							
	2040						15%*		10%
	2046		15%						
	2050				15%				
							* *Step applies only to production*		** *Steps in years HCFC reductions are due*

	North American proposal	Indian proposal	European Union proposal	Island States proposal
Key provisions per Montreal Protocol Article included in the texts of the proposed amendments	Article 1			
	Controlled substances: 19 HFCs	Controlled substances: 19 HFCs	List of substances: 19 HFCs	Controlled substances: 22 HFCs
		Added definition of full conversion costs	Added definition of listed HFCs	Added definitions of the United Nations Framework Convention on Climate Change and its Kyoto Protocol
	Article 2 [a]			
	Reduction steps for non-Article 5 parties as indicated above	Reduction steps for non-Article 5 parties as indicated above	Reduction steps for non-Article 5 parties as indicated above	Reduction steps for non-Article 5 parties as indicated above
	Limits on HFC-23 by-product emissions	No controls on HFC-23 by-product emissions under the Protocol	Limits on HFC-23 by-product emissions	Limits on HFC-23 by-product emissions
	Destruction of HFC-23 through approved technologies	Comprehensive efforts to convert HFC-23 into useful products	Destruction of HFC-23 through approved technologies	Destruction of HFC-23 through approved technologies
	Production to satisfy the basic domestic needs of Article 5 parties	Production to satisfy the basic domestic needs of Article 5 parties		Production to satisfy the basic domestic needs of Article 5 parties
	Transfer of HFC production rights	Transfer of HFC production rights	Transfer of HFC production rights	Transfer of HFC production rights
	Agreement by consensus on GWP adjustments for HCFCs and HFCs	Agreement by consensus on GWP adjustments for HCFCs and HFCs		
	Article 3			
	Calculation of HFC control levels including HFC-23 emissions	Calculation of HFC control levels excluding HFC-23 emissions	Calculation of HFC and HCFC control levels including HFC-23 emissions	Calculation of HFC control levels including HFC-23 emissions
	Article 4			
	Bans on HFC trade with non-parties	Bans on HFC trade with non-parties	Bans on HFC trade with non-parties	Bans on HFC trade with non-parties
	Licensing of HFC imports/exports	Licensing of HFC imports/exports	Licensing of HFC imports/exports	Licensing of HFC imports/exports
	Article 5 [a]			
	Reduction steps for Article 5 parties as indicated above	Reduction steps for Article 5 parties as indicated above	Freeze and reduction steps for Article 5 parties as indicated above	Reduction steps for Article 5 parties as indicated above

[a] All proposals provide for phasing-down of HFC consumption and production using the Montreal Protocol's expertise and institutions while continuing to include HFCs under the scope of the United Nations Framework Convention on Climate Change and its Kyoto Protocol for accounting for and reporting emissions.

	North American proposal	Indian proposal	European Union proposal	Island States proposal
Key provisions per Montreal Protocol Article included in the texts of the proposed amendments	**Article 6**			
	Assessment and review of HFC control measures	Assessment and review of HFC control measures	Assessment and review of HFC measures	Assessment and review of HFC control measures
	Article 7			
	Reporting on HFC production and consumption	Reporting on HFC production and consumption	Reporting on HFC production and consumption	Reporting on HFC production and consumption
	Reporting on HFC-23 by-product emissions and amounts captured and destroyed through approved technologies		Reporting on HFC-23 by-product emissions and amounts captured and destroyed through approved technologies	Reporting on HFC-23 by-product emissions and amounts captured and destroyed through approved technologies
	Article 9			
			Research, development, public awareness and exchange of information related to alternatives, including HFCs	
	Article 10			
	Multilateral Fund support for Article 5 parties in implementing the amendment	Strengthening the financial mechanism for providing financial and technical cooperation, including transfer of technologies to Article 5 parties [b]	Multilateral Fund support for Article 5 parties in implementing the amendment	Multilateral Fund strengthening and funding for the phase-down of HFC production and consumption including support for early action and provisions for financial and technical cooperation with Article 5 parties [c]

[b] The financial mechanism would: provide compensation for lost profit stream for gradual closure of production facilities of HFCs; meet the "full costs of conversion" to HFC production facilities, manufacturing unit of equipment(s)/products from HFCs to low-GWP/zero GWP alternatives, operating costs for 5 years; meet full second conversion costs wherever transitional technologies are used; provide adequate funding for the servicing sector, including for training of technicians, awareness, equipment support etc; cover transfer of technology including technologies with intellectual property rights, process and application patents.

[c] The financial mechanism would promote energy efficiency and overcome barriers to the uptake of low-GWP technologies.

	North American proposal	Indian proposal	European Union proposal	Island States proposal
Additional key elements included in the decisions to accompany the proposed amendments	Accompanying decision includes possible adjustments to HFC reduction schedules based on progress in deployment of alternatives no later than 2025 for non-Article 5 parties and 2030 for Article 5 parties	Accompanying background text includes: ➢ Nationally determined phase-down steps for HFCs in Article 5 parties ➢ Date of freeze to be the date of eligibility of enterprises for financial assistance ➢ Emissions of HFC-23 to be addressed as a priority ➢ Research and Development efforts to convert HFC-23 into useful products ➢ Exemptions for metered-dose inhalers and other medical applications ➢ Essential-use exemptions for all parties ➢ No controls on HFC feedstock applications		